

09/869309

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Sequence Listing

<110> Hofmann, Kay

<120> Protease

<130> Protease Memorec

<140> US 09/869,309

<141> 2001-07-20

<150> 19902550.9

<151> 1999-01-22

<150> 19925946.1

<151> 1999-06-08

<150> 19929115.2

<151> 1999-06-24

<160> 20

<170> PatentIn Ver. 2.1

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<211> 592

<212> PRT

<213> Homo sapiens

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Met Ala Ala Ala Val Ala Ala Ala Leu Ala Arg Leu Leu Ala Ala Phe
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Leu Leu Leu Ala Ala Gln Val Ala Cys Glu Tyr Gly Met Val His Val
20 25 30

Val Ser Gln Ala Gly Gly Pro Glu Gly Lys Asp Tyr Cys Ile Leu Tyr
35 40 45

Asn Pro Gln Trp Ala His Leu Pro His Asp Leu Ser Lys Ala Ser Phe
50 55 60

Leu Gln Leu Arg Asn Trp Thr Ala Ser Leu Leu Cys Ser Ala Ala Asp
65 70 75 80

Leu Pro Ala Arg Gly Phe Ser Asn Gln Ile Pro Leu Val Ala Arg Gly
85 90 95

Asn Cys Thr Phe Tyr Glu Lys Val Arg Leu Ala Gln Gly Ser Gly Ala
100 105 110

Arg Gly Leu Leu Ile Val Ser Arg Glu Arg Leu Val Pro Pro Gly Gly
115 120 125

Asn Lys Thr Gln Tyr Asp Glu Ile Gly Ile Pro Val Ala Leu Leu Ser
130 135 140

Tyr Lys Asp Met Leu Asp Ile Phe Thr Arg Phe Gly Arg Thr Val Arg
145 150 155 160

Ala Ala Leu Tyr Ala Pro Lys Glu Pro Val Leu Asp Tyr Asn Met Val
165 170 175

Ile Ile Phe Ile Met Ala Val Gly Thr Val Ala Ile Gly Gly Tyr Trp
180 185 190

Ala Gly Ser Arg Asp Val Lys Lys Arg Tyr Met Lys His Lys Arg Asp
 195 200 205
 Asp Gly Pro Glu Lys Gln Glu Asp Glu Ala Val Asp Val Thr Pro Val
 210 215 220
 Met Thr Cys Val Phe Val Val Met Cys Cys Ser Met Leu Val Leu Leu
 225 230 235 240
 Tyr Tyr Phe Tyr Asp Leu Leu Val Tyr Val Val Ile Gly Ile Phe Cys
 245 250 255
 Leu Ala Ser Ala Thr Gly Leu Tyr Ser Cys Leu Ala Pro Cys Val Arg
 260 265 270
 Arg Leu Pro Phe Gly Lys Cys Arg Ile Pro Asn Asn Ser Leu Pro Tyr
 275 280 285
 Phe His Lys Arg Pro Gln Ala Arg Met Leu Leu Leu Ala Leu Phe Cys
 290 295 300
 Val Ala Val Ser Val Val Trp Gly Val Phe Arg Asn Glu Asp Gln Trp
 305 310 315 320
 Ala Trp Val Leu Gln Asp Ala Leu Gly Ile Ala Phe Cys Leu Tyr Met
 325 330 335
 Leu Lys Thr Ile Arg Leu Pro Thr Phe Lys Ala Cys Thr Leu Leu Leu
 340 345 350
 Leu Val Leu Phe Leu Tyr Asp Ile Phe Phe Val Phe Ile Thr Pro Phe
 355 360 365
 Leu Thr Lys Ser Gly Ser Ser Ile Met Val Glu Val Ala Thr Gly Pro
 370 375 380
 Ser Asp Ser Ala Thr Arg Glu Lys Leu Pro Met Val Leu Lys Val Pro
 385 390 395 400
 Arg Leu Asn Ser Ser Pro Leu Ala Leu Cys Asp Arg Pro Phe Ser Leu
 405 410 415
 Leu Gly Phe Gly Asp Ile Leu Val Pro Gly Leu Leu Val Ala Tyr Cys
 420 425 430
 His Arg Phe Asp Ile Gln Val Gln Ser Ser Arg Val Tyr Phe Val Ala
 435 440 445
 Cys Thr Ile Ala Tyr Gly Val Gly Leu Leu Val Thr Phe Val Ala Leu
 450 455 460
 Ala Leu Met Gln Arg Gly Gln Pro Ala Leu Leu Tyr Leu Val Pro Cys
 465 470 475 480
 Thr Leu Val Thr Ser Cys Ala Val Ala Leu Trp Arg Arg Glu Leu Gly
 485 490 495
 Val Phe Trp Thr Gly Ser Gly Phe Ala Lys Val Leu Pro Pro Ser Pro
 500 505 510
 Trp Ala Pro Ala Pro Ala Asp Gly Pro Gln Pro Pro Lys Asp Ser Ala
 515 520 525
 Thr Pro Leu Ser Pro Gln Pro Pro Ser Glu Glu Pro Ala Thr Ser Pro
 530 535 540

Trp	Pro	Ala	Glu	Gln	Ser	Pro	Lys	Ser	Arg	Thr	Ser	Glu	Glu	Met	Gly
545					550					555				560	
Ala	Gly	Ala	Pro	Met	Arg	Glu	Pro	Gly	Ser	Pro	Ala	Glu	Ser	Glu	Gly
				565				570					575		
Arg	Asp	Gln	Ala	Gln	Pro	Ser	Pro	Val	Thr	Gln	Pro	Gly	Ala	Ser	Ala
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<211> 520
<212> PRT
<213> Homo sapiens

<400> 2																
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					20			25				30				
Ser	Gly	Asn	Gly	Thr	Thr	Lys	Asp	Tyr	Cys	Met	Leu	Tyr	Asn	Pro	Tyr	
		35				40				45						
Trp	Thr	Ala	Leu	Pro	Ser	Thr	Leu	Glu	Asn	Ala	Thr	Ser	Ile	Ser	Leu	
		50				55				60						
Met	Asn	Leu	Thr	Ser	Thr	Pro	Leu	Cys	Asn	Leu	Ser	Asp	Ile	Pro	Pro	
		65				70			75				80			
Val	Gly	Ile	Lys	Ser	Lys	Ala	Val	Val	Val	Pro	Trp	Gly	Ser	Cys	His	
			85				90					95				
Phe	Leu	Glu	Lys	Ala	Arg	Ile	Ala	Gln	Lys	Gly	Gly	Ala	Glu	Ala	Met	
			100				105					110				
Leu	Val	Val	Asn	Asn	Ser	Val	Leu	Phe	Pro	Pro	Ser	Gly	Asn	Arg	Ser	
			115				120				125					
Glu	Phe	Pro	Asp	Val	Lys	Ile	Leu	Ile	Ala	Phe	Ile	Ser	Tyr	Lys	Asp	
			130				135				140					
Phe	Arg	Asp	Met	Asn	Gln	Thr	Leu	Gly	Asp	Asn	Ile	Thr	Val	Lys	Met	
			145				150			155			160			
Tyr	Ser	Pro	Ser	Trp	Pro	Asn	Phe	Asp	Tyr	Thr	Met	Val	Val	Ile	Phe	
			165				170				175					
Val	Ile	Ala	Val	Phe	Thr	Val	Ala	Leu	Gly	Gly	Tyr	Trp	Ser	Gly	Leu	
			180				185				190					
Val	Glu	Leu	Glu	Asn	Leu	Lys	Ala	Val	Thr	Thr	Glu	Asp	Arg	Glu	Met	
			195			200				205						
Arg	Lys	Lys	Lys	Glu	Glu	Tyr	Leu	Thr	Phe	Ser	Pro	Leu	Thr	Val	Val	
			210			215				220						
Ile	Phe	Val	Val	Ile	Cys	Cys	Val	Met	Met	Val	Leu	Leu	Tyr	Phe	Phe	
			225			230			235			240				
Tyr	Lys	Trp	Leu	Val	Tyr	Val	Met	Ile	Ala	Ile	Phe	Cys	Ile	Ala	Ser	

245	250	255
Ala Met Ser Leu Tyr Asn Cys Leu Ala Ala Leu Ile His Lys Ile Pro		
260	265	270
Tyr Gly Gln Cys Thr Ile Ala Cys Arg Gly Lys Asn Met Glu Val Arg		
275	280	285
Leu Ile Phe Leu Ser Gly Leu Cys Ile Ala Val Ala Val Val Trp Ala		
290	295	300
Val Phe Arg Asn Glu Asp Arg Trp Ala Trp Ile Leu Gln Asp Ile Leu		
305	310	315
320		
Gly Ile Ala Phe Cys Leu Asn Leu Ile Lys Thr Leu Lys Leu Pro Asn		
325	330	335
Phe Lys Ser Cys Val Ile Leu Leu Gly Leu Leu Leu Leu Tyr Asp Val		
340	345	350
Phe Phe Val Phe Ile Thr Pro Phe Ile Thr Lys Asn Gly Glu Ser Ile		
355	360	365
Met Val Glu Leu Ala Ala Gly Pro Phe Gly Asn Asn Glu Lys Leu Pro		
370	375	380
Val Val Ile Arg Val Pro Lys Leu Ile Tyr Phe Ser Val Met Ser Val		
385	390	395
400		
Cys Leu Met Pro Val Ser Ile Leu Gly Phe Gly Asp Ile Ile Val Pro		
405	410	415
Gly Leu Leu Ile Ala Tyr Cys Arg Arg Phe Asp Val Gln Thr Gly Ser		
420	425	430
Ser Tyr Ile Tyr Tyr Val Ser Ser Thr Val Ala Tyr Ala Ile Gly Met		
435	440	445
Ile Leu Thr Phe Val Val Leu Val Leu Met Lys Lys Gly Gln Pro Ala		
450	455	460
Leu Leu Tyr Leu Val Pro Cys Thr Leu Ile Thr Ala Ser Val Val Ala		
465	470	475
480		
Trp Arg Arg Lys Glu Met Lys Lys Phe Trp Lys Gly Asn Ser Tyr Gln		
485	490	495
Met Met Asp His Leu Asp Cys Ala Thr Asn Glu Glu Asn Pro Val Ile		
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Ser Gly Glu Gln Ile Val Gln Gln		
515	520	

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 <212> PRT
 <213> Homo sapiens

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 Gly Pro Thr Asn Ser Thr Thr Arg Pro Pro Ser Thr Pro Glu Gly Ile
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Ala Leu Ala Tyr Gly Ser Leu Leu Leu Met Ala Leu Leu Pro Ile Phe
 35 40 45
 Phe Gly Ala Leu Arg Ser Val Arg Cys Ala Arg Gly Lys Asn Ala Ser
 50 55 60
 Asp Met Pro Glu Thr Ile Thr Ser Arg Asp Ala Ala Arg Phe Pro Ile
 65 70 75 80
 Ile Ala Ser Cys Thr Leu Leu Gly Leu Tyr Leu Phe Phe Lys Ile Phe
 85 90 95
 Ser Gln Glu Tyr Ile Asn Leu Leu Leu Ser Met Tyr Phe Phe Val Leu
 100 105 110
 Gly Ile Leu Ala Leu Ser His Thr Ile Ser Pro Phe Met Asn Lys Phe
 115 120 125
 Phe Pro Ala Ser Phe Pro Asn Arg Gln Tyr Gln Leu Leu Phe Thr Gln
 130 135 140
 Gly Ser Gly Glu Asn Lys Glu Glu Ile Ile Asn Tyr Glu Phe Asp Thr
 145 150 155 160
 Lys Asp Leu Val Cys Leu Gly Leu Ser Ser Ile Val Gly Val Trp Tyr
 165 170 175
 Leu Leu Arg Lys His Trp Ile Ala Asn Asn Leu Phe Gly Leu Ala Phe
 180 185 190
 Ser Leu Asn Gly Val Glu Leu Leu His Leu Asn Asn Val Ser Thr Gly
 195 200 205
 Cys Ile Leu Leu Gly Gly Leu Phe Ile Tyr Asp Val Phe Trp Val Phe
 210 215 220
 Gly Thr Asn Val Met Val Thr Val Ala Lys Ser Phe Glu Ala Pro Ile
 225 230 235 240
 Lys Leu Val Phe Pro Gln Asp Leu Leu Glu Lys Gly Leu Glu Ala Asn
 245 250 255
 Asn Phe Ala Met Leu Gly Leu Gly Asp Val Val Ile Pro Gly Ile Phe
 260 265 270
 Ile Ala Leu Leu Leu Arg Phe Asp Ile Ser Leu Lys Lys Asn Thr His
 275 280 285
 Thr Tyr Phe Tyr Thr Ser Phe Ala Ala Tyr Ile Phe Gly Leu Gly Leu
 290 295 300
 Thr Ile Phe Ile Met His Ile Phe Lys His Ala Gln Pro Ala Leu Leu
 305 310 315 320
 Tyr Leu Val Pro Ala Cys Ile Gly Phe Pro Val Leu Val Ala Leu Ala
 325 330 335
 Lys Gly Glu Val Thr Glu Met Phe Ser Tyr Glu Glu Ser Asn Pro Lys
 340 345 350
 Asp Pro Ala Ala Val Thr Glu Ser Lys Glu Gly Thr Glu Ala Ser Ala
 355 360 365
 Ser Lys Gly Leu Glu Lys Lys Glu Lys
 370 375

<210> 4
<211> 384
<212> PRT
<213> Homo sapiens

<400> 4
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Gln Val Ser Thr Phe Leu Ile Ser Ile Leu Leu Ile Val Tyr Gly Ser
20 25 30

Phe Arg Ser Leu Asn Met Asp Phe Glu Asn Gln Asp Lys Glu Lys Asp
35 40 45

Ser Asn Ser Ser Ser Gly Ser Phe Asn Gly Asn Ser Thr Asn Asn Ser
50 55 60

Ile Gln Thr Ile Asp Ser Thr Gln Ala Leu Phe Leu Pro Ile Gly Ala
65 70 75 80

Ser Val Ser Leu Leu Val Met Phe Phe Phe Asp Ser Val Gln Val
85 90 95

Val Phe Thr Ile Cys Thr Ala Val Leu Ala Thr Ile Ala Phe Ala Phe
100 105 110

Leu Leu Leu Pro Met Cys Gln Tyr Leu Thr Arg Pro Cys Ser Pro Gln
115 120 125

Asn Lys Ile Ser Phe Gly Cys Cys Gly Arg Phe Thr Ala Ala Glu Leu
130 135 140

Leu Ser Phe Ser Leu Ser Val Met Leu Val Leu Ile Trp Val Leu Thr
145 150 155 160

Gly His Trp Leu Leu Met Asp Ala Leu Ala Met Gly Leu Cys Val Ala
165 170 175

Met Ile Ala Phe Val Arg Leu Pro Ser Leu Lys Val Ser Cys Leu Leu
180 185 190

Leu Ser Gly Leu Leu Ile Tyr Asp Val Phe Trp Val Phe Phe Ser Ala
195 200 205

Tyr Ile Phe Asn Ser Asn Val Met Val Lys Val Ala Thr Gln Pro Ala
210 215 220

Asp Asn Pro Leu Asp Val Leu Ser Arg Lys Leu His Leu Gly Pro Asn
225 230 235 240

Val Gly Arg Asp Val Pro Arg Leu Ser Leu Pro Gly Lys Leu Val Phe
245 250 255

Pro Ser Ser Thr Gly Ser His Phe Ser Met Leu Gly Ile Gly Asp Ile
260 265 270

Val Met Pro Gly Leu Leu Leu Cys Phe Val Leu Arg Tyr Asp Asn Tyr
275 280 285

Lys Lys Gln Ala Ser Gly Asp Ser Cys Gly Ala Pro Gly Pro Ala Asn
290 295 300

Ile	Ser	Gly	Arg	Met	Gln	Lys	Val	Ser	Tyr	Phe	His	Cys	Thr	Leu	Ile
305					310										320
Gly	Tyr	Phe	Val	Gly	Leu	Leu	Thr	Ala	Thr	Val	Ala	Ser	Arg	Ile	His
					325					330					335
Arg	Ala	Ala	Gln	Pro	Ala	Leu	Leu	Tyr	Leu	Val	Pro	Phe	Thr	Leu	Leu
					340					345					350
Pro	Leu	Leu	Thr	Met	Ala	Tyr	Leu	Lys	Gly	Asp	Leu	Arg	Arg	Met	Trp
					355					360					365
Ser	Glu	Pro	Phe	His	Ser	Lys	Ser	Ser	Ser	Ser	Arg	Phe	Leu	Glu	Val
					370					375					380

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<213> Mus musculus

<400> 5															
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Cys	Arg	Arg	Phe	Asp	Val	Gln	Thr	Gly	Ser	Ser	Ile	Tyr	Tyr	Ile	Ser
					20			25					30		
Ser	Thr	Ile	Ala	Tyr	Ala	Val	Gly	Met	Ile	Ile	Thr	Phe	Val	Val	Leu
					35			40					45		
Met	Val	Met	Lys	Thr	Gly	Gln	Pro	Ala	Leu	Leu	Tyr	Leu	Val	Pro	Cys
					50			55					60		
Thr	Leu	Ile	Thr	Val	Ser	Val	Val	Ala	Trp	Ser	Arg	Lys	Glu	Met	Lys
					65			70					80		
Lys	Phe	Trp	Lys	Gly	Ser	Ser	Tyr	Gln	Val	Met	Asp	His	Leu	Asp	Tyr
					85			90					95		
Ser	Thr	Asn	Glu	Glu	Asn	Pro	Val	Thr	Thr	Asp	Glu	Gln	Ile	Val	Gln
					100			105					110		
Gln															

<210> 6
<211> 378
<212> PRT
<213> Mus musculus

<400> 6															
Met	Asp	Ser	Ala	Val	Ser	Asp	Pro	His	Asn	Gly	Ser	Ala	Glu	Ala	Gly
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Thr	Pro	Ala	Asn	Gly	Thr	Thr	Arg	Pro	Pro	Ser	Thr	Pro	Glu	Gly	Ile
					20			25					30		
Ala	Leu	Ala	Tyr	Gly	Ser	Leu	Leu	Leu	Met	Ala	Leu	Leu	Pro	Ile	Phe
					35			40					45		

Phe Gly Ala Leu Pro Ser Val Arg Cys Ala Arg Gly Lys Ser Ser Ser
 50 55 60

Asp Met Pro Glu Thr Ile Thr Ser Arg Asp Ala Ala Arg Phe Pro Ile
 65 70 75 80

Ile Ala Ser Cys Thr Leu Leu Gly Leu Tyr Leu Phe Phe Lys Ile Phe
 85 90 95

Ser Gln Glu Tyr Ile Asn Leu Leu Leu Ser Met Tyr Phe Phe Val Leu
 100 105 110

Gly Ile Leu Ala Leu Ser His Thr Ile Ser Pro Phe Met Asn Lys Phe
 115 120 125

Phe Pro Ala Asn Phe Pro Asn Arg Gln Tyr Gln Leu Leu Phe Thr Gln
 130 135 140

Gly Ser Gly Glu Asn Lys Glu Glu Ile Ile Asn Tyr Glu Phe Asp Thr
 145 150 155 160

Lys Asp Leu Val Cys Leu Gly Leu Ser Ser Val Val Gly Val Trp Tyr
 165 170 175

Leu Leu Arg Lys His Trp Ile Ala Asn Asn Leu Phe Gly Leu Ala Phe
 180 185 190

Ser Leu Asn Gly Val Glu Leu Leu His Leu Asn Asn Val Ser Thr Gly
 195 200 205

Cys Ile Leu Leu Gly Gly Leu Phe Ile Tyr Asp Ile Phe Trp Val Phe
 210 215 220

Gly Thr Asn Val Met Val Thr Val Ala Lys Ser Phe Glu Ala Pro Ile
 225 230 235 240

Lys Leu Val Phe Pro Gln Asp Leu Leu Glu Lys Gly Leu Glu Ala Asp
 245 250 255

Asn Phe Ala Met Leu Gly Leu Gly Asp Ile Val Ile Pro Gly Ile Phe
 260 265 270

Ile Ala Leu Leu Leu Arg Phe Asp Ile Ser Leu Lys Lys Asn Thr His
 275 280 285

Thr Tyr Phe Tyr Thr Ser Phe Ala Ala Tyr Ile Phe Gly Leu Gly Leu
 290 295 300

Thr Ile Phe Ile Met His Ile Phe Lys His Ala Gln Pro Ala Leu Leu
 305 310 315 320

Tyr Leu Val Pro Ala Cys Ile Gly Phe Pro Val Leu Val Ala Leu Ala
 325 330 335

Lys Gly Glu Val Ala Glu Met Phe Ser Tyr Glu Glu Ser Asn Pro Lys
 340 345 350

Asp Pro Ala Ala Val Thr Glu Ser Lys Glu Glu Ser Thr Glu Ala Ser
 355 360 365

Ala Ser Lys Arg Leu Glu Lys Lys Glu Lys
 370 375

<210> 7
<211> 257
<212> PRT
<213> Mus musculus

<220>
<221> misc_feature
<222> (175)..(175)
<223> Xaa can be any naturally occurring amino acid

<400> 7
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Leu Leu Ser Phe Tyr Leu Ser Val Met Leu Val Leu Ile Trp Val Leu
20 25 30

Thr Gly His Trp Leu Leu Met Asp Ala Leu Ala Met Gly Leu Cys Val
35 40 45

Ala Met Ile Ala Phe Val Arg Leu Pro Ser Leu Lys Val Ser Cys Leu
50 55 60

Leu Leu Ser Gly Leu Leu Ile Tyr Asp Val Phe Trp Val Phe Phe Ser
65 70 75 80

Ala Tyr Ile Phe Asn Ser Asn Val Met Val Lys Val Ala Thr Gln Pro
85 90 95

Ala Asp Asn Pro Leu Asp Val Leu Ser Arg Lys Leu His Leu Gly Pro
100 105 110

Asn Val Gly Arg Asp Val Pro Arg Leu Ser Leu Pro Gly Lys Leu Val
115 120 125

Phe Pro Ser Ser Thr Gly Ser His Phe Ser Met Leu Gly Ile Gly Asp
130 135 140

Ile Val Met Pro Gly Leu Leu Leu Cys Phe Val Leu Arg Tyr Asp Asn
145 150 155 160

Tyr Lys Lys Gln Ala Ser Gly Asp Ser Cys Gly Ala Pro Gly Xaa Ala
165 170 175

Asn Ile Ser Gly Arg Met Gln Lys Val Ser Tyr Phe His Cys Thr Leu
180 185 190

Ile Gly Tyr Phe Val Gly Leu Leu Thr Ala Thr Val Ala Ser Arg Val
195 200 205

His Arg Ala Ala Gln Pro Ala Leu Leu Tyr Leu Val Pro Phe Thr Leu
210 215 220

Leu Pro Leu Leu Thr Met Ala Tyr Leu Lys Gly Asp Leu Arg Arg Met
225 230 235 240

Trp Ser Glu Pro Phe His Ser Lys Ser Ser Ser Arg Phe Leu Glu
245 250 255

Val

<210> 8

<211> 587
<212> PRT
<213> *Saccharomyces cerevisiae*

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20 25 30

Asn Lys Glu Leu Glu Gln Val Phe Glu Gln Ile Asn Ala Ile Val Glu
35 40 45

Asn His Asn Asn Lys Leu Thr Thr Ala Phe Asp Lys Ile Ser Tyr Arg
50 55 60

Val Ala His Lys Ile Thr His Leu Val Glu Ser His Ser Leu Val Phe
65 70 75 80

Asn Tyr Ala Thr Leu Val Leu Ile Ala Ser Ala Leu Val Val Ile Gly
85 90 95

Ser Phe Thr Ser Ile Ser Ser Ile Pro Phe Thr Ala Leu Pro Pro Thr
100 105 110

Arg Glu His Ser Leu Phe Asp Pro Thr Asp Phe Asp Val Asp His Asp
115 120 125

Cys His Val Ile Tyr Arg Glu Asn Asp Glu Asp Lys Lys Lys Lys Lys
130 135 140

Lys Ser Lys Arg Phe Phe Asp Met Met Asp Glu Lys His Ala Ile Ile
145 150 155 160

Leu Pro Leu Thr Ser Gly Cys Thr Leu Leu Ala Leu Tyr Phe Val Ile
165 170 175

Lys Lys Leu His Leu Asn Trp Leu Lys Tyr Val Val Lys Ile Leu Asn
180 185 190

Phe Asn Ile Thr Leu Leu Asn Ile Pro Ala Gly Thr Phe Val Tyr Ser
195 200 205

Tyr Phe Leu Asn Ser Leu Phe Arg Asn Leu Ser His Leu Ala Ser Trp
210 215 220

Asn Pro Leu Val Val Leu Pro Arg Tyr Arg Val Thr Ile Ala Asp Asp
225 230 235 240

Asn Glu Asp Leu Asn Lys Ile Gly Gly Phe Val Thr Asn Leu Asn Tyr
245 250 255

Lys Asp Gly Leu Thr Asn Ser Val Val His Lys Lys Thr Leu Asp Glu
260 265 270

Ile Glu Lys Asp His Trp Met Lys His Phe Tyr Arg Arg Glu Leu Val
275 280 285

Glu Pro Lys Asp Ile Lys Ser Lys Arg Gln Ile Ser Asn Met Tyr Leu
290 295 300

Asn Ser Ala Leu Ile Val Ser Phe Val Leu Ser Ile Val Ser Thr Val
305 310 315 320

Tyr Phe Tyr Leu Ser Pro Asn Asp Trp Leu Ile Ser Asn Ala Val Ser

325	330	335
Met Asn Met Ala Ile Trp Ser Ile Ala Gln Leu Lys Leu Lys Asn Leu		
340	345	350
Lys Ser Gly Ala Leu Ile Leu Ile Ala Leu Phe Phe Tyr Asp Ile Cys		
355	360	365
Phe Val Phe Gly Thr Asp Val Met Val Thr Val Ala Thr Asn Leu Asp		
370	375	380
Ile Pro Val Lys Leu Ser Leu Pro Val Lys Phe Asn Thr Ala Gln Asn		
385	390	395
Asn Phe Asn Phe Ser Ile Leu Gly Leu Gly Asp Ile Ala Leu Pro Gly		
405	410	415
Met Phe Ile Ala Met Cys Tyr Lys Tyr Asp Ile Trp Lys Trp His Leu		
420	425	430
Asp His Asp Asp Thr Glu Phe His Phe Leu Asn Trp Ser Tyr Val Gly		
435	440	445
Lys Tyr Phe Ile Thr Ala Met Val Ser Tyr Val Ala Ser Leu Val Ser		
450	455	460
Ala Met Val Ser Leu Ser Ile Phe Asn Thr Ala Gln Pro Ala Leu Leu		
465	470	475
Tyr Ile Val Pro Ser Leu Leu Ile Ser Thr Ile Leu Val Ala Cys Trp		
485	490	495
Asn Lys Asp Phe Lys Gln Phe Trp Asn Phe Gln Tyr Asp Thr Ile Glu		
500	505	510
Val Asp Lys Ser Leu Lys Lys Ala Ile Glu Lys Lys Glu Asn Ser Ile		
515	520	525
Thr Tyr Ser Thr Phe Ile Leu Ser Glu Tyr Tyr Asn Asp Ala Asp Lys		
530	535	540
Tyr Ala Leu Leu Gly Asp Asp Val Asn Glu Asn Phe Asp Asp Asp Glu		
545	550	555
560		
Glu Phe Val Gln Glu Glu Asp Leu Ser Asp Ser Ser Glu Glu Glu Leu		
565	570	575
Ser Glu Glu Asp Leu Leu Asp Asp Glu Ser Ser		
580	585	

<210> 9
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 <212> DNA
 <213> *Saccharomyces cerevisiae*

<400> 9
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 ggc当地
 aaggcatctt tcctgcagct ggc当地
 ctcccccggcc gtc当地
 tatgagaaag tgaggctggc ccaggccggc ggagcacgcg ggctgctcat cgtcagcagg 360
 gagaggctgg tccccccggg gggtaataag acgc当地
 gcccctgctca gctacaaga
 catgctggac atcttcacgc gtttccggccg cacgggtgagg 480

cgccgcgtgt	atgcgcctaa	ggagccggtg	ctggactaca	acatggtcat	cattttcatt	540
atggctgtgg	gcaccgtcgc	catcgccg	tactgggccc	ggagtcggga	cgtaaagaaa	600
aggtacatga	agcacaagcg	cgacgatggg	cccgagaagc	aggaggacga	ggcgggtggac	660
gtgacgcggg	tgatgacctg	cgtgttgg	gtgatgtgt	gctccatgt	ggtgctgtct	720
tactactct	acgacccct	cgtgtacgt	gtcatcggt	tcttctgcct	ggcctccgccc	780
accggccct	acagctgcct	ggccgcctgt	gtgcggccgc	tgccttcgg	caagtcggagg	840
atccccaaaca	acagcctgccc	ctacttccac	aagccccccgc	aggccccgtat	gctgctctgt	900
gcccgttct	gctggccgg	cagcgtggt	tggggcgtt	tccgcacga	ggaccagggtgg	960
gcctgggtcc	tccaggatgc	cctgggcac	gccttcgtcc	tctacatgt	gaagaccatc	1020
cgtctgccc	ccttcaggc	ctgcacgc	ctgctgttgg	tgctgttct	ctacgcacatc	1080
ttcttcgtgt	tcatcacgc	cttccgtacc	aagagtggg	gcagcatcat	ggtggaggtg	1140
gccactggc	cctcggaactc	agccacccgt	gagaagctgc	ccatggtct	gaagggtgccc	1200
aggctgaact	ccteacctt	ggccctgtgt	gaccggccct	tctccctct	gggtttcgga	1260
gacattttgg	tgccagggt	gctgggtggc	tactgccaca	ggtttgcacat	ccaggtacag	1320
tcctccagg	tataacttcgt	ggcctgcacc	atcgccat	gcgttggct	ccttgcata	1380
ttcggtggac	tggccctgtat	gcagcgtggc	cagcccgctc	tccttcac	ggtgcctgtc	1440
acgctgggt	cgagctgc	tgtggcgtc	tggccggg	agctggcgt	ttctgtggacg	1500
ggcagcggt	ttggaaaagt	cctacatc	tctccgtgg	ccccacgacc	agccgcagg	1560
cccgagcctc	ccaaagactc	tgccacgc	ctctcccccgc	agccgcccag	cgaagaacca	1620
gccacatccc	cctggcctgc	tgagcgttcc	ccaaaatc	gcacgtccga	ggagatgggg	1680
gctggagccc	ccatgcggg	gcctgggagc	ccagctgaat	ccgagggccg	ggaccaggcc	1740
cagccgtccc	cggttaaccca	gcctggcgcc	tcggcc			1776

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<210> 10
<211> 1560
<212> DNA
<213> Homo sapiens
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<400> 10
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tactgcatgc tttataaccc ttattggaca gctcttccaa gtaccctaga aaatgcact 180
tccatttagtt tgatgaatct gacttccaca ccaactatgca acctttctga tattcctcct 240
gttggcataa agagcaaaagc agttgtgggtt ccattggggaa gtcgcattt tcttggaaaa 300
gccagaattt cacagaaaagg aggtgctgaa gcaatgttag ttgtcaataa cagtgtccta 360
tttctccctt caggtaacag atctgaattt cctgtatgtaa aataactgtat tgcattttata 420
agctacaatgg acttttagaga tatgaaccag actcttaggaa ataacattac tgtaaaatgg 480
tattctccat cgtggcccaa ctttgattt actatgggtt ttatttttgtt aattgcgggt 540
ttcactgtgg cattagggtt atactggagt ggacttagttt aattggaaaa cttgaaagca 600
gtgacaactg aagatagaga aatgaggaaa aagaaggaaag aatatttaac ttttagtcct 660
cttacagttttaatattttgtt ggtcatctgc tggatgttataactt ttatatttttc 720
tacaaatggt tggtttatgtt tatgatagca attttctgca tagcatcagg aatgagtcgt 780
tacaactgtc ttgtgtcact aattcataag ataccatatg gacaatgcac gattgtatgt 840
cgtggcaaaa acatggaaatg gagacttattt ttctctctg gactgtgtatg agcagtagct 900
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tggagacgtttaa agggaaatggaa aaagttctgg aaaggtaaca gctatcatgat gatggaccat 1500
ttggattgttgc caacaaatgtttaa agggaaatggaa aaagttctgg aaaggtaaca gctatcatgat gatggaccat 1560

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<210> 11
<211> 1131
<212> DNA
<213> Homo sapiens
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<400> 11
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agcactacgc ggccgccttc cacgccccgag ggcatcgccg tggctacgg cagcctcctg 120

ctcatggcgc	tgctgcccatttcttcggc	gccctgcgctccgtacgcgt	cgcccgccgc	180
aagaatgctt	cagacatgcccagaaacaatc	accagccgggatgcccggc	cttccccatc	240
atcgccagctt	gcacacttgggctctac	ctcttttcaaaatattctc	ccaggagtagc	300
atcaacctcc	tgctgtccatgtatcttc	gtgctggaatcctggccct	gtcccacacc	360
atcagccctt	tcatgaataatgttttcca	gccagcttccaaatcgaca	gtaccagctg	420
ctcttcacac	agggttctgggaaaacaag	gaagagatctaattatga	atttgacacc	480
aaggacctgg	tgtgcctgggcttgagcagc	atcggttgcgtctgttacct	gctgaggaag	540
cactggattt	ccaacaaccttttggcctg	gccttcctccctaatggagt	agagctcctg	600
cacctaacaat	atgtcagcacggctgcattc	ctgctggcgcgactcttcat	ctacgatgtc	660
ttctggat	ttggcaccaatgtatggtg	acagtggccaagccttcga	ggcaccaata	720
aaattgggtt	tcccccagatctgtggaa	aaaggcctcgaaagaaacaa	cttgcctatg	780
ctgggacttg	gagatgtcgtatcccagg	atcttcattgcctgtgtc	gcgctttgac	840
atcagcttga	agaagaataaccacacattc	tttacaccagttgcgc	ctatcatctt	900
ggcctggcc	ttaccatcttcatcatgcac	atcttcaagatgtcagcc	tgccctctta	960
tacctggtcc	ccgcctgtcatcggtttcc	gtcctgtggcgctggca	gggagaagt	1020
acagagatgt	tcagttatgagagtc	cctaaggatcagcggcag	gacagaatcc	1080
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<210> 12
<211> 1152
<212> DNA
<213> *Homo sapiens*

<400> 12
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gaaaatcaag ataaggagaa agacagtaat agttcttctg ggtcttcaa tggcaacagc 180
accaataata gcatccaaac aattgactct acccagggctc tggcccttcc aattggagca 240
tctgtctctc ttttagtaat gttttcttc tttgactctag ttcaggatgt ttttacaata 300
tgtacagcag ttcttgaaac gatagttttt gttttttcc ttcggatgt gtggcagtt 360
ttaacaagac cctgtccacc tcagaacaag attttcccttgg gttgtgtgg acgttttact 420
gctgtgtgat tgctgtcatt ctctctgtct gtcatgtcg tcctcatgt ggttctact 480
ggccatttgc ttctcatggc tgcactggcc atggccctct gtgtcgccat gatcccttt 540
gtccgcctgc cgagcccaa ggtctctgc ctgtttctct cagggtttct catctatgtat 600
gtcttttggg tattttctc agcctacatc ttcaatagca acgtcatgtt gaaggtggcc 660
actcagccgg ctgacaatcc ctttgacgtt ctatccggaa agtccacact gggcccaat 720
gttgggcgtg atgttctcg cctgtctctg cctggaaaac tggcttccc aagctccact 780
ggcagccact ttcctatgtt gggcatcgga gacatcgta tgcctggctc cctactatgc 840
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cccgccttc tctattttgtt gccatattact ttattggccac tcctcacat ggcctattta 1080
aagggcgacc tccggcgat gtggtctgag ctttccact ccaagtcccg cagctcccc 1140
ttccctggaaag ta 1152

<210> 13
<211> 339
<212> DNA
<213> *Mus musculus*

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<400> 13
gtattgggtt tcggagatat cattgtacca ggcctgtta ttgcataattg tagaagattc 60
gatgttcaga ctgggttcttc tatatactat attcatcca caattgccta tgctgttggc 120
atgatcatta ccttgggtgt cctgtatggtg atgaaaacag ggcagcctgc ttcctctac 180
ttggtacatt gtacacttat tactgtctca gtcgttgctt ggagtcgtaa ggaaatgaaa 240
aagttcttgg aaggcagcag ctatcaggtg atggaccacc ttgactattc aacaatgaa 300
gaaaatccag tgacgactga tgagcagatt gtacaacag 339
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<210> 14
<211> 1134
<212> DNA
<213> *Mus musculus*

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<400> 14
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ctcatggcgc tgctgcccatttcttcggc gcccggcgct cggtgccgt cgccggcggc 180
aagagctttt cggacatgcc agaaaaccatc accagtcgag atgcccggccg cttcccccattc 240
atcgccagct gcacactcct ggggctctac ctcttttca aaatattctc ccaggagttac 300
atcaacccct tgctgtccat gtatttctc gtgctgggaa tcctggccct gtcacacacc 360
atcagccct tcataataa gtttttcca gccaacttcc caaaccggcca gtatcagctg 420
ctcttcacac agggctctgg gaaaaacaaa gaagagatca tcaactatga gtttgacact 480
aaggacctgg tgtgcctggg cctaaggcgc gtcgttggg tctggtacct tctgaggaaag 540
caactggatt ccaacaacccgttggccctg gccttctccc ttaatgggggt agagctcctg 600
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ggcgagatgt tcagttatga ggagtccaaac cctaaagatc cagcagccgt gactgaatcc 1080
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<210> 15
<211> 771
<212> DNA
<213> *Mus musculus*

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<220>
<221> misc_feature
<222> (524)..(525)
<223> n is a, c, q, or t
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<400> 15
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gctctggcca tgggtctctg tggttgcctatg atcgccttcg tccgcctgcc aaggcctaag 180
gtttcctgccc tgcttctctc agggcttctc atctacgtat tcttctgggt gttcttctca 240
gcctacatct tcaacagtaa tgcatgggt aaagtggcca cacagccagc tgacaatccc 300
ctcgacgttc tgcaggaaat gtcacccatg ggacccaatg tggggcgtga tggccctcgc 360
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ccatattaccc tattggccact cctcaccatg gcctacactaa agggtgactt acggaggatg 720
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<210> 16
<211> 1761
<212> DNA
<213> *Saccharomyces cerevisiae*

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<400> 16
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gaacagatca atgttatagt tggaaaaccac aataacaaat taaccactgc ctttgataag 180
atatcatatc gcgttgctca caagattaca cacttggtgg aaagccattc tttagtattc 240
aactacgcca cttagttct catcgcagaat gctttggtcg ttattggctc atttacgtct 300
atttcttcta ttccattttac agtcttcatc cctacgagag aacactcatt gtttgatctt 360
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aagaaaaaaaga agaaaagcaa gaggttttc gatatgttgg atggaaaaaca tgcgattata 480
ctgcccttaa ctatgtggctg tactttactc gctcttattt ttgtgtatcaa gaaactacac 540
ctaaactggc taaaatatgt ggtggaaaattt ttgaatttta atataacact gctaaatata 600
ccagctgqca catttggctca ctccctactttt ctcactcac ttttcgaaaaa cctatcacat 660
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tttagcttctt ggaatccccct gggtgtttta ccaaggatatac gtgtacaacaat agctgatgat 720
aacgaagacc tgaacaagat aggccgggtt gttaccatt tgaattacaa agatggattg 780
accaactcag ttgttcacaa gaaaacattt gatgagattt aaaaagatca ttggatgaag 840
catttttaca gaagagaatt agttgaacccg aaggatatta aatcgaagag gcagatcagc 900
aacatgtatt tgaatagcgc attaattgtt tcgttcggtc tgcgtatcgat ttctaccgt 960
tatttctatt tatcacccaa tgattggta atatccatg ctgtcagttat gaatatggct 1020
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gtatgccgaca agtatgcctt gtttgggtat gatgtaaacg aaaaatttttga cgatgtgat 1680
gaattcgatc aagagggaaatc tctcgtatcgat agctctgagg aagagcttcc tgaagaagat 1740
ctcttggatc acgaatcttc t 1761

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<210> 17
<211> 1560
<212> DNA
<213> Homo sapiens
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<210> 18
<211> 520
<212> PRT
<213> *Homo sapiens*

<400> 18
Met Gly Pro Gln Arg Arg Leu Ser Pro Ala Gly Ala Ala Leu Leu Trp
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Gly Phe Leu Leu Gln Leu Thr Ala Ala Gln Glu Ala Ile Leu His Ala
20 25 30

Ser Gly Asn Gly Thr Thr Lys Asp Tyr Cys Met Leu Tyr Asn Pro Tyr
 35 40 45
 Trp Thr Ala Leu Pro Ser Thr Leu Glu Asn Ala Thr Ser Ile Ser Leu
 50 55 60
 Met Asn Leu Thr Ser Thr Pro Leu Cys Asn Leu Ser Asp Ile Pro Pro
 65 70 75 80
 Val Gly Ile Lys Ser Lys Ala Val Val Val Pro Trp Gly Ser Cys His
 85 90 95
 Phe Leu Glu Lys Ala Arg Ile Ala Gln Lys Gly Gly Ala Glu Ala Met
 100 105 110
 Leu Val Val Asn Asn Ser Val Leu Phe Pro Pro Ser Gly Asn Arg Ser
 115 120 125
 Glu Phe Pro Asp Val Lys Ile Leu Ile Ala Phe Ile Ser Tyr Lys Asp
 130 135 140
 Phe Arg Asp Met Asn Gln Thr Leu Gly Asp Asn Ile Thr Val Lys Met
 145 150 155 160
 Tyr Ser Pro Ser Trp Pro Asn Tyr Asp Tyr Thr Met Val Gly Ile Phe
 165 170 175
 Gly Ile Ala Val Phe Thr Gly Ala Leu Ser Gly Tyr Trp Ser Gly Leu
 180 185 190
 Val Glu Leu Glu Asn Leu Lys Ala Val Thr Thr Glu Asp Arg Glu Met
 195 200 205
 Arg Lys Lys Lys Glu Glu Tyr Leu Thr Phe Ser Pro Leu Thr Val Val
 210 215 220
 Ile Phe Val Val Ile Cys Cys Val Met Met Val Leu Leu Tyr Phe Phe
 225 230 235 240
 Tyr Lys Trp Leu Val Tyr Val Met Ile Ala Ile Phe Cys Ile Ala Ser
 245 250 255
 Ala Met Ser Leu Tyr Asn Cys Leu Ala Ala Leu Ile His Lys Ile Pro
 260 265 270
 Tyr Gly Gln Cys Thr Ile Ala Cys Arg Gly Lys Asn Met Glu Val Arg
 275 280 285
 Leu Ile Phe Leu Ser Gly Leu Cys Ile Ala Val Ala Val Val Trp Ala
 290 295 300
 Val Phe Arg Asn Glu Asp Arg Trp Ala Trp Ile Leu Gln Asp Ile Leu
 305 310 315 320
 Gly Ile Ala Phe Cys Leu Asn Leu Ile Lys Thr Leu Lys Leu Pro Asn
 325 330 335
 Phe Lys Ser Cys Val Ile Leu Leu Gly Leu Leu Leu Tyr Asp Val
 340 345 350
 Phe Phe Val Phe Ile Thr Pro Phe Ile Thr Lys Asn Gly Glu Ser Ile
 355 360 365
 Met Val Glu Leu Ala Ala Gly Pro Phe Gly Asn Asn Glu Lys Leu Pro
 370 375 380

Val	Val	Ile	Arg	Val	Pro	Lys	Leu	Ile	Tyr	Phe	Ser	Val	Met	Ser	Val
385				390				395				400			
Cys	Leu	Met	Pro	Val	Ser	Ile	Leu	Gly	Phe	Gly	Asp	Ile	Ile	Val	Pro
		405				410						415			
Gly	Leu	Leu	Ile	Ala	Tyr	Cys	Arg	Arg	Phe	Asp	Val	Gln	Thr	Gly	Ser
		420				425						430			
Ser	Tyr	Ile	Tyr	Tyr	Val	Ser	Ser	Thr	Val	Ala	Tyr	Ala	Ile	Gly	Met
		435			440						445				
Ile	Leu	Thr	Phe	Val	Val	Leu	Val	Leu	Met	Lys	Lys	Gly	Gln	Pro	Ala
		450			455				460						
Leu	Leu	Tyr	Leu	Val	Pro	Cys	Thr	Leu	Ile	Thr	Ala	Ser	Val	Val	Ala
		465			470			475				480			
Trp	Arg	Arg	Lys	Glu	Met	Lys	Lys	Phe	Trp	Lys	Gly	Asn	Ser	Tyr	Gln
		485				490						495			
Met	Met	Asp	His	Leu	Asp	Cys	Ala	Thr	Asn	Glu	Glu	Asn	Pro	Val	Ile
		500			505				510						
Ser	Gly	Glu	Gln	Ile	Val	Gln	Gln								
		515			520										

<210> 19
<211> 684
<212> PRT
<213> Homo sapiens

<400> 19															
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Ser	Thr	Val	Ala	Gly	Gly	Lys	Tyr	Gly	Val	Ala	His	Val	Val	Ser	Glu
				20			25					30			
Asn	Trp	Ser	Lys	Asp	Tyr	Cys	Ile	Leu	Phe	Ser	Ser	Asp	Tyr	Ile	Thr
			35			40					45				
Leu	Pro	Arg	Asp	Leu	His	His	Ala	Pro	Leu	Leu	Pro	Leu	Tyr	Asp	Gly
			50			55				60					
Thr	Lys	Ala	Pro	Trp	Cys	Pro	Gly	Glu	Asp	Ser	Pro	His	Gln	Ala	Gln
			65			70			75				80		
Leu	Arg	Ser	Pro	Ser	Gln	Arg	Pro	Leu	Arg	Gln	Thr	Thr	Ala	Met	Val
				85			90			95					
Met	Arg	Gly	Asn	Cys	Ser	Phe	His	Thr	Lys	Gly	Trp	Leu	Ala	Gln	Gly
			100			105					110				
Gln	Gly	Ala	His	Gly	Leu	Leu	Ile	Val	Ser	Arg	Val	Ser	Asp	Gln	Gln
			115			120			125						
Cys	Ser	Asp	Thr	Thr	Leu	Ala	Pro	Gln	Asp	Pro	Arg	Gln	Pro	Leu	Ala
			130			135			140						
Asp	Leu	Thr	Ile	Pro	Val	Ala	Met	Leu	His	Tyr	Ala	Asp	Met	Leu	Asp
			145			150			155			160			

Ile Leu Ser His Thr Arg Gly Glu Ala Val Val Arg Val Ala Met Tyr
 165 170 175
 Ala Pro Pro Glu Pro Ile Ile Asp Tyr Asn Met Leu Val Ile Phe Ile
 180 185 190
 Leu Ala Val Gly Thr Val Ala Ala Gly Gly Tyr Trp Ala Gly Leu Thr
 195 200 205
 Glu Ala Asn Arg Leu Gln Arg Arg Arg Ala Arg Arg Gly Gly Ser
 210 215 220
 Gly Gly His His Gln Leu Gln Glu Ala Ala Ala Ala Glu Gly Ala Gln
 225 230 235 240
 Lys Glu Asp Asn Glu Asp Ile Pro Val Asp Phe Thr Pro Ala Met Thr
 245 250 255
 Gly Val Val Val Thr Leu Ser Cys Ser Leu Met Leu Leu Leu Tyr Phe
 260 265 270
 Phe Tyr Asp His Phe Val Tyr Val Thr Ile Gly Ile Phe Gly Leu Gly
 275 280 285
 Ala Gly Ile Gly Leu Tyr Ser Cys Leu Ser Pro Leu Val Cys His Leu
 290 295 300
 Ser Leu Arg Gln Tyr Gln Arg Pro Pro His Ser Leu Trp Ala Ser Leu
 305 310 315 320
 Pro Leu Pro Leu Leu Leu Ala Ser Leu Cys Ala Thr Val Ile Ile
 325 330 335
 Phe Trp Val Ala Tyr Arg Asn Glu Asp Arg Trp Ala Trp Leu Leu Gln
 340 345 350
 Asp Thr Leu Gly Ile Ser Tyr Cys Leu Phe Val Leu His Arg Val Arg
 355 360 365
 Leu Pro Thr Leu Lys Asn Cys Ser Ser Phe Leu Leu Ala Leu Leu Ala
 370 375 380
 Phe Asp Val Phe Phe Val Phe Val Thr Pro Phe Phe Thr Lys Thr Gly
 385 390 395 400
 Glu Ser Ile Met Ala Gln Val Ala Leu Gly Pro Ala Glu Ser Ser Ser
 405 410 415
 His Glu Arg Leu Pro Met Val Leu Lys Val Pro Arg Leu Arg Val Ser
 420 425 430
 Ala Leu Thr Leu Cys Ser Gln Pro Phe Ser Ile Leu Gly Phe Gly Asp
 435 440 445
 Ile Val Val Pro Gly Phe Leu Val Ala Tyr Cys Cys Arg Phe Asp Val
 450 455 460
 Gln Val Cys Ser Arg Gln Ile Tyr Phe Val Ala Cys Thr Val Ala Tyr
 465 470 475 480
 Ala Val Gly Leu Leu Val Thr Phe Met Ala Met Val Leu Met Gln Met
 485 490 495
 Gly Gln Pro Ala Leu Leu Tyr Leu Val Ser Ser Thr Leu Leu Thr Ser
 500 505 510

Leu Ala Val Ala Ala Cys Arg Gln Glu Leu Ser Leu Phe Trp Thr Gly
 515 520 525
 Gln Gly Arg Ala Lys Met Cys Gly Leu Gly Cys Ala Pro Ser Ala Gly
 530 535 540
 Ser Arg Gln Lys Gln Glu Gly Ala Ala Asp Ala His Thr Ala Ser Thr
 545 550 555 560
 Leu Glu Arg Gly Thr Ser Arg Gly Ala Gly Asp Leu Asp Ser Asn Pro
 565 570 575
 Gly Glu Asp Thr Thr Glu Ile Val Thr Ile Ser Glu Asn Glu Ala Thr
 580 585 590
 Asn Pro Glu Asp Arg Ser Asp Ser Ser Glu Gly Trp Ser Asp Ala His
 595 600 605
 Leu Asp Pro Asn Glu Leu Pro Phe Ile Pro Pro Gly Ala Ser Glu Glu
 610 615 620
 Leu Met Pro Leu Met Pro Met Ala Met Leu Ile Pro Leu Met Pro Leu
 625 630 635 640
 Met Pro Pro Pro Ser Glu Leu Gly His Val His Ala Gln Ala Gln Ala
 645 650 655
 His Glu Thr Gly Leu Pro Trp Ala Gly Leu His Lys Arg Lys Gly Leu
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 Lys Val Arg Lys Ser Met Ser Thr Gln Ala Pro Leu
 675 680

<210> 20
 <211> 2052
 <212> DNA
 <213> Homo sapiens

<400> 20
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 ctgttcagct ccgactacat caccctcccc cgggacctgc accacgcccc actcctgccc 180
 ctgtatgatc gcaccaaggc accctggc cccgggtgagg atcccccca ccaggccccag 240
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 tgcagcttcc acacgaaagg ctggctggc cagggccaag tgcccacgg gctgctcatc 360
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